

# Kentucky Health Notes

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## Hip Fractures and Osteoporosis

*Incidence of hip fracture increases with age - women at a higher risk than men*

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### Introduction

Hip fracture is among the most common musculoskeletal injuries requiring surgical treatment in the U.S. and one of the most detrimental bone fractures one can endure. Data from the Kentucky Department for Public Health (DPH) indicate that one-fourth of individuals that suffer a hip fracture die within one year of the injury.

A hip fracture can involve fractures of any aspect of the proximal femoral neck (just below the ball part of the ball and socket joint) and from the neck to the first 4-5 centimeters of the subtrochanteric area (outward-jutting upper femur).

### The Impact of Hip Fracture

Hip fractures and their treatment have lasting health consequences beyond immediate hospital treatment. Only 25% of individuals who have sustained hip fractures will make a full recovery from their injury, with 50% needing a cane or walker and as many as 25% require nursing home care for at least a year due to their injury. Only 40% of patients are able to perform activities of daily living independently after their fracture. Hip fractures reduce life expectancy by 1.8 years, and up to 20% of people in the U.S. who have a hip fracture will die within a year of injury due to complications with surgery procedure and/or recovery period issues.

Along with the decline of bone strength, hip fracture incidence increases with age and women are at a higher risk than men. Women who are 5'8" or taller have twice the risk of suffering a hip fracture than women under 5'3". Rates for hip fractures increase exponentially with age among both sexes, doubling every 5 to 6 years past age 50. People ages 85 and over are 10 to 15 times more likely to have a hip fracture than people between ages 60 and 65.

### Relationship of Osteoporosis and Hip Fractures

Osteoporosis is the principal cause of reduced bone strength. It is difficult to identify fractures attributable to osteoporosis, but fractures do occur as a result of the relationship of bone strength with skeletal loading. For instance, fractures do not occur until the loads encountered in the course of everyday activities or with specific episodes of trauma exceed the breaking strength of the bone. It has been estimated that 90% of proximal femur fractures among white women 65-84 years of age are related to osteoporosis. Although the incidence of hip fracture is less in men, about 80% of male hip fractures are presumed to be osteoporotic-related.

### The Cost of Hip Fractures

Hip fractures are very costly for both individuals as well as Kentucky's health care system. The average cost per patient for treating and caring for a hip fracture within the first year of occurrence is \$26,912. National annual Medicare costs for the treatment of hip fractures were estimated to be \$2.9 billion in 1991. Lifetime costs attributable to sustaining a hip fracture were \$81,300, of which 44% was spent on nursing home care. The lifetime costs noted by the *Journal for the American Geriatric Society* for all hip fractures in the U.S. have been estimated as being greater than \$20 billion.

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## Hip Fractures and Osteoporosis

**Kentucky: Hip Fracture Hospitalizations and the Elderly**

Selection criteria for this analysis included individuals with a principal diagnosis ICD-9 code of 820.0 through 820.9 with a corresponding diagnosis related group of 210, 211, 216, 217, 218, 230, 233, 234, or 236.

Kentucky hospital data for 2006 show there were 2,955 discharges of elderly patients with hip fracture from acute and rehabilitation hospitals. NOTE: Although most patients were likely to have been hospitalized only once during a year, it is possible that some may have had multiple discharges and been counted more than once. However, this occurs rarely in diagnosis of hip fractures. Table 1 shows hospital discharges with diagnosis of hip fractures for individuals 65 years and over during that year.

Following national trends, females accounted for 75.5% of total hip fracture discharges while males make up 24.5%.

In 2000, there were a total of 2,673 admissions at acute care or rehabilitation hospitals for hip fractures. That number had increased to 2,955 by 2006. Figure 1 (page 3) shows the number of admissions per year by gender. In Kentucky's female population 65 years and older, the incidence of hip fracture was 7.4 per 1000; in men the same age group, it was 3.4 per 1000. The rate per 1000 was 4.0 higher for women.



The acute care or rehabilitation hospital emergency room was the chief admission source for hip fracture patients (both males and females in each age cohort). Physician referral was the next greatest source of admission to the hospital. The average length of stay (ALOS) in an acute care or rehabilitation hospital for all cohorts regardless of admission source was 6.49 days.

**Table 1. Hospital Discharges with Diagnosis of Hip Fracture by Age and Gender, Kentucky 2006**

Age	Number (Female)	Rate (Female)	Number (Male)	Rate (Male)	Total by Age
65-69	163	2.0 per 1000	66	0.93 per 1000	1.5 per 1000
70-74	246	4.4 per 1000	112	1.6 per 1000	2.9 per 1000
75-79	385	9.0 per 1000	146	2.4 per 1000	5.1 per 1000
80-84	552	11.7 per 1000	155	5.6 per 1000	9.5 per 1000
85 +	886	20.9 per 1000	244	14.9 per 1000	19.2 per 1000
<b>Total 65+</b>	2232	7.4 per 1000	723	3.4 per 1000	5.7 per 1000

Figure 1. Hip Fractures by Year and Gender, Kentucky Years 2000-2006

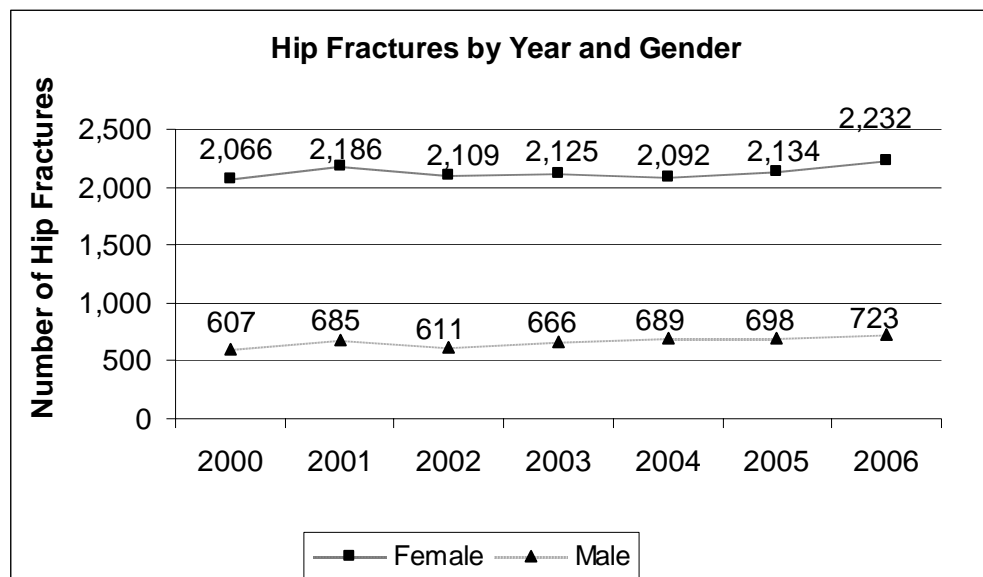
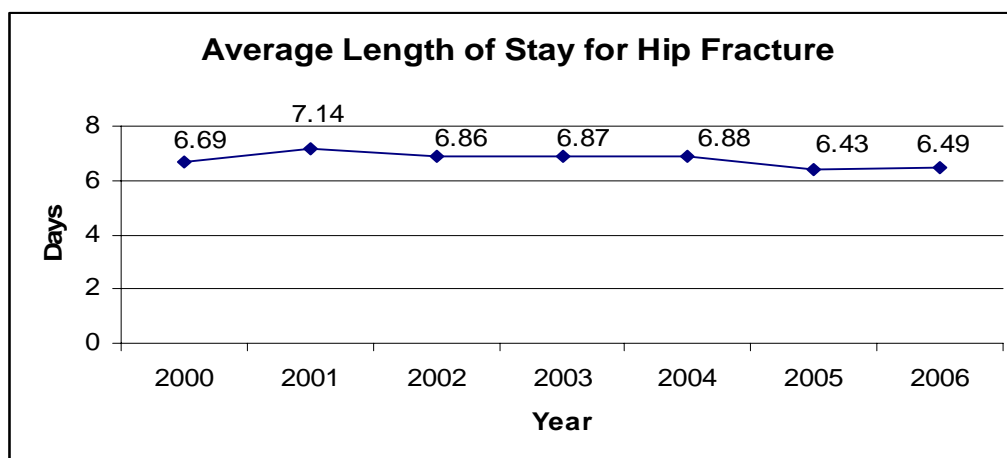


Figure 2. Average Length of Stay in the Hospital following a Hip Fracture (Years 2000 - 2006)



When the admission source was an emergency room the average length of stay was 5.79 days. Physician referral admissions had an average length of stay of 6.05 days. The lengthiest stay was registered in the "transfer from a hospital" admission source with an average of 10.87 days. The length of stay has remained relatively stable since year 2000. Figure 2 shows the average length of stay from years 2000 to 2006.

Within all age cohorts, most patients discharged from hospitals with hip fractures were placed in skilled nursing facilities (SNF). The ALOS ranged from a low of 6.04 days for females age 65-69 to a high of 7.17 days for males age 80-84 and does not vary widely by age group.

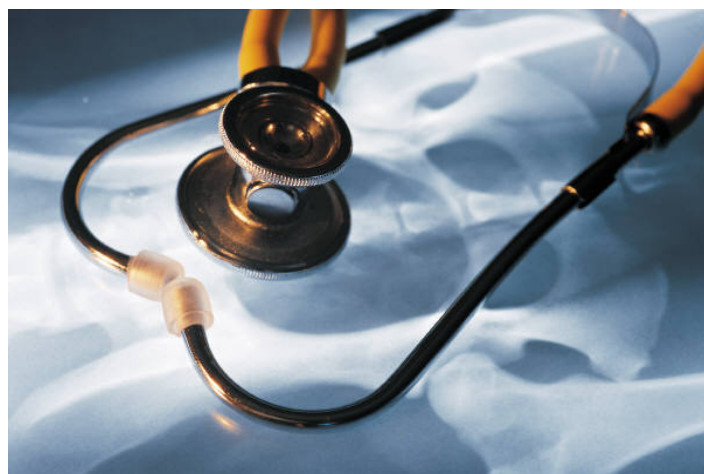
Table 2. Hip Fracture Hospitalization and Placement, Kentucky 2006

Female (age groups)	#1 Placement SNF Number Patients	Other Placements	Total Cases	Days	ALOS	Expired
65-69	51	112	163	984	6.04	4
70-74	94	152	246	1,565	6.36	2
75-79	172	213	385	2,604	6.76	5
80-84	265	287	552	3,565	6.46	11
85+	533	353	886	5,507	6.22	32
Totals	1,115	1,117	2,232	14,225	6.37	54
Male (age groups)	Number Patients	Other Placements	Total Cases	Days	ALOS	Expired
65-69	28	38	66	441	6.68	1
70-74	43	69	112	778	6.95	0
75-79	53	93	146	906	6.21	8
80-84	71	84	155	1,112	7.17	5
85 +	135	109	244	1,717	7.04	18
Totals	330	393	723	4,954	6.85	32

Table 2 shows discharges to placement after hospital care and the average length of stay for each male and female age cohort discharged (including deaths).

#### Hip Fracture Risk Assessment

Risk factors identified for hip fractures include increasing age, environmental hazards, muscle weakness, functional limitations, use of psychoactive prescription drugs, and a history of previous falls. More than 95% of hip fractures are the result of a fall.



**Hip Fractures and Osteoporosis**

The National Center for Injury Prevention and Control (NCIPC) recommends the following four strategies for an individual to help prevent falls:

1. Begin a regular exercise program, particularly with exercises which improve balance, coordination and strength, such as Tai Chi. Exercise is one of the most effective ways to decrease chances of falling and is low cost.
2. Have a home health care provider, primary doctor or pharmacist review all medications being taken (both prescription and over-the-counter) to ensure that there are no interactions that may cause dizziness or sleepiness, which can lead to falls.
3. Have a vision exam at least once a year by an optometrist.
4. Make sure the home is a safe place. Take the following steps to help decrease chances of falls occurring at home:
  - a. Remove items that can be tripped over such as shoes from areas that are often walked hallways or stairs.
  - b. Do not use small throw rugs or alternatively, use double-sided tape to ensure they will stay securely in place.
  - c. Store frequently used items in cabinets and closets, which do not require a step stool or are difficult to reach.
  - d. Have safety bars installed by the toilet and in the bathtub or shower.
  - e. Use non-slip mats in the bathtub/shower and on the bathroom floor.
  - f. Increase lighting in the home. Lightweight curtains or shades help reduce the glare of the sun while allowing more natural light naturally inside the house.
  - g. Place handrails and lights on all stairways.
  - h. Wear sturdy shoes both inside and outside of the house, as opposed to slippers or being barefoot.

For more information on helping to prevent falls, including a Home Fall Prevention Checklist for Older Adults, visit the National Center for Injury Prevention and Control at [www.cdc.gov/ncipc](http://www.cdc.gov/ncipc).

**Kentucky Intervention Program**

To reduce the number of hip fractures for improved quality of life and increased longevity, DPH is working with other organizations to implement a new program called *A Matter of Balance*. This structured group program addresses physical, social, and cognitive factors affecting fear of falling and allows participants to learn fall prevention strategies. *A Matter of Balance* intervention program includes group discussion, problem-solving, skill building, assertiveness training, videotapes, sharing practical solutions and exercise training activities, as well as utilizing lay leaders to facilitate these classes. Twenty-one Kentucky master trainers completed the two-day session offered by Maine Health's Partnership for a Healthy Aging and earned *A Matter of Balance* Master Trainer Certificate in May. Community programs will be implemented this fall in several regions in Kentucky and lay leaders will be trained to continue on-going classes in community centers and faith-based organizations throughout Kentucky. It is important that health care professionals educate the elderly of the risk factors associated with hip fractures and ways they can prevent falls.

**Conclusion**

Hip fractures are an increasing concern for the elderly in terms of the extended time period spent in the hospital, high medical costs, and the probability that the individual may be placed in a skilled nursing facility upon discharge from the hospital. Falls in older adults are dangerous and preventable. Intervention programs that help older adults learn more about and minimize fall risks are important for maintaining independence. Evidence-based programs for the 60+ age population can have positive impact on the quality of life of Kentucky's aging population.

For additional information on hip fractures and osteoporosis, contact the Department for Public Health's Chronic Disease Branch at (502) 564-7996 or log onto [www.chfs.ky.gov/dph/ach/cd/osteo.htm](http://www.chfs.ky.gov/dph/ach/cd/osteo.htm).



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